0105

Prognostic value of anemia in patients hospitalized for acute heart failure

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Purpose: The purpose of our study is to investigate the presence of anemia among patients admitted for acute heart failure and to evaluate its short and medium term prognostic value.

Methods: This is a retrospective study of 234 patients admitted in the cardiology department of Fattouma Bourguiba Monastir hospital between January 2010 and March 2011. Anemia was defined according to the criteria of the World Health Organization (WHO): Haemoglobin <13g/dl in men and <12g/dl in women.

Results: The mean hemoglobin (Hb) was 12.1±2.26g / dl. The prevalence of anemia in our population is 55.6% (N=130 cases). A significantly higher frequency of anemia is found among subjects older than 75 years (71.18% vs 50.28%, P=0.005), patients with impaired renal function (72.46% vs 48.48%, p=0.001) and among those who had shown signs of right heart failure (72.18% vs. 48.48%, p=0.001) whereas no statistically significant difference was found among hypertensive diabetics or those with impaired LVEF.

17 of our patients died during hospitalization. 10 Among these patients had anemia. The relative increase in hospital mortality in anemic patients was not significant. Nevertheless, the rate of rehospitalization during follow-up of 6 months and the rate of mortality at 6 months were significantly higher in patients who had anemia; Respectively 14.28% vs 3.68%, p=0.001 and 7.83% vs 3.68% p=0.019.

Conclusion: Anemia is frequent in patients admitted for acute heart failure and seems to be related to an increase in readmission and mortality at 6 months in our study.

0106

Hyponatremia and outcomes in patients admitted for acute heart failure

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Purpose: The aims of this study is to characterize hyponatremic hospitalized patients with HF and to clarify the relations between hyponatremia and outcomes during hospitalization and at 6 months.

Methods: This is a retrospective study of 234 patients admitted in the cardiology department of Fattouma Bourguiba Monastir hospital between January 2010 and March 2011.

Hyponatremia was defined as a blood value of sodium < 135 mmol/l.

Results: The mean serum sodium concentration is 138±5 mmol / l. Hyponatremia (Na + <135 mmol / l) was noted in 63 (26.9%) patients.

Hospital mortality was 7.3% (N = 17). Cardiovascular origin was observed in 58.8% of cases. This mortality was significantly higher in patients with hyponatremia, 15.87%, compared to 4.09%, in those with normonatremia (p=0.004). After their outputs, 39 patients (19.69%) required at least one rehospitalization during the first 6 months of follow-up. The 6-month mortality was 11, 5%. The rate of readmission and mortality at 6 months was higher in patients who had hyponatremia; respectively 32.07% vs 13.41%, p =0.002 and 21.42% vs 7.78%, p =0.005.

Conclusion: In our study, the presence of hyponatremia in patients hospitalized for acute heart failure is predictive of hospital mortality, readmission and mortality at 6 months.

0122

Peritoneal dialysis and heart failure: designing of the heart module in the French speaking peritoneal dialysis registry (RDPLF)

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Heart failure (HF) is a frequent and severe comorbidity in dialysis patients (pts); conversely, 30% of pts in the large *Acute Decompensated Heart Failure National Registry* had moderate to severe chronic kidney disease and 5% were receiving dialysis therapy. Refractory HF is a not uncommon indication for peritoneal ultrafiltration although its benefits have been unconsistently reported through mainly retrospective or monocentric studies. The main objectives of the "heart module" are to prospectively collect data related to cardiac status in PD pts and to allow longitudinal follow-up of cardiac- and dialysis-related parameters in HF pts

Methods: The RDPLF constitutes the largest recruiting observational cohort of French speaking PD pts, with coverage estimated at 98,3% of PD in France in 2013. All centers complete a set of core modules covering socio-demographics and basic clinical information, peritonitis episodes, and outcomes. Optional specialized modules are available. The heart module consists of baseline followed by quarterly collection of information related to cardiac disease, hospitalization rate, and dialysis-related parameters.

Results: 14 centers volunteered to participate since the heart module was launched in February 2013, now totalizing 75 pts. PD was initiated because of HF in 73%. Mean eGFR was 22±14ml/mn/1.73m^2 with GFR>15ml/mn/1.73m^2 in 69%. Half of the pts had echocardiographic Left Ventricular Ejection Fraction (LVEF)<30% and 71% pts had NYHA III-IV status. Mean rate of hospitalization the previous year was 30.8 days/pts/yr. Follow-up data were obtained in 38 pts at 3 months. Hospitalization rate decreased from 8.4 days/100 days to 4.7 days/100 days. LVEF increased by more than 10% in 13/23 pts. Mortality rate was 15.6% among the 32 pts with 1-year follow-up.

Conclusions: Expanding this cohort will give the unique opportunity to define features of HF requiring PD and clarify which pts take most benefit from the strategy. The rapid decrease of hospitalization rate is confirmatory of previous studies.

0163

Renal arterial resistance index versus biomarkers for predicting acute kidney injury in acute heart failure

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Acute kidney injury (AKI) is frequent during acute heart failure (AHF) and worsens the outcome. To predict AKI is important but remains challenging. The aim of this study was to analyze Doppler-derived renal arterial resistance index (RRI) during AHF as well as its determinants and its predictive value of AKI as compared to renal biomarkers

Methods: comprehensive echocardiographic examination and Doppler measurement of RRI were performed on admission, at day 3 and at discharge. RRI was the ratio (peak systolic velocity – end diastolic velocity)/ peak systolic velocity of interlobar blood flow. Serial assessment of clinical parameters

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as well as creatinine, cystatin C, blood NGAL, urinary NGAL and electrolytes was also obtained. AKI was defined by an increase in creatinine ≥ 0.3mg/l relative to the admission level. Exclusion criteria was eGFR < 15ml/min/1.73m² and atrial fibrillation.

Results: among the 26 included patients, AKI occurred in 8 patients at day 3 and in 10 patients at discharge. Mean RRI values were 0.71±0.08 on admission, 0.71±0.09 at day 3 and 0.74±0.08 at discharge. RRI was related to age, creatinine and cystatin C (p≤0.05 for all) but not to other clinical or echocardiographic variables or BNP or NGAL levels. Only admission RRI was significantly associated with AKI at day 3 (table) as well as RRI at day 3 for AKI at discharge (0.77±0.07 vs 0.67±0.8; p=0.02).

Conclusion: this pilot study describes RRI values as well as its early changes and determinants during AHF. Doppler-derived RRI measurement appears to be a relevant tool for predicting AKI.

Abstract 0163 – Table

Admission variables	No AKI	AKI	p
Age	60±17	69±14	0.29
LVEF	25±8	33±17	0.78
Blood Pressure	122±18	118±19	0.63
eGFR	62±24	52±20	0.35
Cystacin C	1.4±0.6	1.8±0.7	0.08
NGAL blood	125±84	147±130	0.76
NGAL urinary	13±17	9±4	0.79
BNP	1979±1815	1562±881	0.95
IRR	0.68±0.08	0.76±0.06	0.03

0326

Prediction of right ventricular failure after cardiac transplantation: a recipient transcriptomic study

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Background: Right ventricle failure (RVF) is a frequent and severe complication after cardiac transplantation. However, risk stratification for RVF is poorly achieved. Development of transcriptomic biomarkers for outcome prediction in cardio-vascular diseases is promising.

Aim: To identify right ventricular gene expression signature associated to RVF and to define a transcriptomic biomarker that could predict post-transplantation RVF.

Methods: Recipient RV myocardial samples of 44 patients transplanted from February 1998 to November 2002 in our center were collected. We retrospectively identified patients with (RVF group) and without (CTL group) post-transplantation RVF.

A 4035-gene expression profile was obtained for all patients. Differentially expressed genes between RVF and CTL groups were identified and a molecular RVF predictor was used to determine for each patient a RVF prediction score (RVFs).

Results: 9 (20%) and 18 (41%) patients were classified in RVF and CTL groups respectively. As compared to CTL group, RVF patients showed higher pre-operative bilirubin level and higher post-operative death rate. Molecular RVF predictor included 75 differentially expressed genes. Using this predictor, risk for post-transplantation RVF was 2.8-fold greater if RVFs was >0.5 (CI 95%: 1.243-6.305). Sensitivity and specificity of RVFs were 0.778 and 0.889, respectively. Using receiver operating characteristic analysis, RVFs area under curve (AUC) was significantly greater than AUC of commonly used RVF predictors (pulmonary vascular resistance, trans-pulmonary gradient).

Conclusion: Gene expression profiling of recipient right ventricle could be used to predict post-transplantation RVF. Transcriptomic biomarkers should be further investigated as a new tool for selection of cardiac transplant candidates.

0381

Heart failure and mechanical circulatory support: experience of a "medico-surgical unit "

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With the shortage of grafts, mechanical circulatory support has emerged as an alternative to heart transplantation. This activity requires a multidisciplinary team specialized in the treatment of heart failure.

This is a single-center prospective cohort of patients under long-term intracorporeal and continuous-flow left assist device type HeartMate II, between january 2008 and january 2014.

Thirty-four devices were implanted in 30 men (88.2%) and 4 women (11.8%) with a mean age of 57.8 years. It concerned ischemic cardiomyopathy in 25 cases (73.5%) and primitive dilation in 9 cases (26.5%). The objective was a « destination therapy » in 11 patients (32.4%) and a « bridge-to-transplant » in 23 patients (67.6%). The 30-day mortality was 4 cases (11.8%), there were 11 deaths (32.4%) with a 1-year survival of 89.5%. Right ventricular failure, defined by a use of inhaled nitrogen monoxide > 48 hours and/or inotropes >14 days, appeared in 14 cases (41.2%). Associated factors were: young age, high pulmonary arterial resistances and right pressures, increased bilirubin and cavitary dilation. The mean duration of intubation was 5 days and ICU stay of 13.2 days. Initial suites were marked by 6 surgical re-openings for bleeding (17.6%), 5 acute renal failures requiring dialysis (14.7%) and 10 acute respiratory distresses (29.4%). Follow-up was performed in a dedicated unit, with functional, ultrasound and rythmological assessment, dietary and psycho-social support, and finally therapeutic education. The main late complications included 4 strokes (11.8%), ischemic or haemorragic, and 9 driveline infections (26.5%). Two patients were transplanted, two others are on waiting list.

Thanks to close collaboration between cardiologists and surgeons, the management of patients with en-stage heart failure has improved with our growing experience in the field of long-term assistance.

0399

Mechanical circulatory support and infection: a single center experience

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With the shortage of grafts, mechanical circulatory support has emerged as an alternative to heart transplantation. But one of the main disadvantages is the percutaneous source of energy that exposes to the risk of infection.

We studied driveline infections occurred in a single-center prospective cohort of patients with long-term intracorporeal and continuous-flow left assist device type HeartMate II, between January 2008 and January 2014.

Among the 34 devices implanted, we identified 9 cases of infection of the power cable (26.5%). The diagnosis was defined by the combination of a positive bacteriological sample with local inflammatory signs, ranging from skin redness to frank pus. The germs found included: 5 aureus staphylococci, 3 white staphylococci, 3 gram-negative bacilli including a pseudomonas aeruginosa, and a citrobacter. The median time to onset of infection was 15 months, ranging from 3 weeks to 2.5 years after implantation. Associated factors were: surgical re-opening, prolonged ICU stay, acute renal failure, the existence of a concomitant infection, malnutrition, duration of assistance and dressing changes at home. The treatment was based on a broad-spectrum antibiotics, secondarily adapted to the antibiogram and long lasting. Among these patients, two were transplanted, including one in the context of a Type 2 Super Emergency, two others died of a non-infectious cause, one patient is now cured and four are still carrying a chronic related-device infection.

The management of end-stage heart failure has improved thanks to our growing experience in the field of long-term assistance, but the driveline infection is a major complication. It greatly affects the quality of life of the patients and transplantation may be the only prospect of recovery.

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